"Means for disenabling the use of a toilet bowl"

Cross-Reference to Related Applications

The present application claims priority from Provisional Patent Application No 2003905239 filed on 24 September 2003, the entire contents of which are incorporated herein by reference.

Technical Field

This invention concerns a means for temporarily disenabling the use of toilet facilities.

Background Art

During construction of residential buildings such as blocks of units or apartments, temporary portable toilet facilities are provided for building and construction workers who are engaged in the construction of these buildings. Such facilities are often referred to as "portaloos" and are a common feature on building sites around Australia. However, such "portaloos" are often located some distance from where the workers are engaged, particularly in the case of high rise buildings. Due to this inconvenience, workers are more often than not, reluctant to waste time travelling to and from the "portaloos". Therefore, there is an unfortunate tendency by building workers to make use of toilet facilities newly installed in the buildings. This use commonly takes place prior to connection of the toilet facilities to plumbing systems and often results in the blockage of toilet facilities. This is an unsavoury and unhealthy practice not to mention costly for the construction company as plumbers are required to travel to the site to unblock the toilet facilities, and restore the status of the facilities.

A second problem arises when toilets which are located in facilities such as public conveniences, toilets in bars, nightclubs and hotels cease to function properly, become blocked or the like. It is usually necessary to temporarily stop patrons using non-functioning toilets pending their repair by a plumber or the like. At present there is no simple and secure way of preventing patrons from using non-functioning toilets.

Any discussion of documents, acts, materials, devices, articles or the like which has been included in the present specification is solely for the purpose of providing a context for the present invention. It is not to be taken as an admission that any or all of these matters form part of the prior art base or were common general knowledge in the

field relevant to the present invention as it existed before the priority date of each claim of this application.

Summary of the Invention

In a first broad aspect, the invention provides a cover means for temporarily blocking a toilet bowl and means for removably locking the cover means in position.

More particularly, the invention may comprise a toilet blocker for temporarily blocking a toilet bowl, the toilet bowl including a depending lip/splashback preventer having a lower edge, the toilet blocker including a cover means for covering the bowl of the toilet and means for removably locking the cover means in position wherein the means for removably locking the cover means in position includes a least one bracket which locates at least partly under, or touching the lower edge of the splashback preventer of the toilet bowl in a first position to secure the cover in position blocking the toilet bowl, and which is movable to a second position to allow the release of the cover means from the toilet bowl.

Typically, the bracket or brackets engage under the lower edge of the splashback preventer of the toilet bowl at at least two locations spaced apart from each other.

The brackets may be rotatable in a first into position to locate under the lower edge of the splashback preventer of the toilet bowl.

Typically, means are provided to prevent or hinder rotation in a counter direction to release the brackets.

In one preferred embodiment the invention, as currently envisaged is a means for temporarily blocking a toilet bowl, which comprises a cover means for temporarily blocking a toilet bowl, and a bracket arrangement connectable to the cover means, the bracket arrangement comprising a first bracket defining a first longitudinal axis and being supportable on the upper surface of the rim of a toilet bowl and a lower bracket defining a second longitudinal axis connected to the first bracket in such a manner that the axes are rotatable relative to one another, the lower bracket having a length such that it may be inserted under the lower edge of the fluid splashback preventer of the toilet bowl in one orientation relative to the bowl but which may be engaged under the lower edge of the fluid splashback preventer of the toilet bowl in a second orientation, and including means for locking the lower bracket in that second orientation.

The cover means is preferably in the form of an oval plate made of mild steel, with a protective rubber pad extending around the perimeter of the plate.

Typically, the plate is attachable to the first bracket by means of tamperproof screws or the like.

The brackets may be made of mild steel and may include protective rubber pads on their ends.

Brief Description of the Drawings

Examples of the invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a top view of a first embodiment of a toilet blocker embodying the present invention;

Figure 2 is a side view of the toilet blocker of Figure 1;

Figure 3 is an exploded isometric view of the toilet blocker apparatus of Figure 1;

Figure 4 is a cut away perspective view illustrating the toilet blocker in use.

Figure 5 is an exploded view of a second embodiment of the invention;

Figures 6a to 6c are cross-sectional views illustrating the installation and removal of the embodiment of Figure 5;

Figure 7a is an exploded view of a third embodiment of the invention;

Figure 7b is a perspective view of a the embodiment of Figure 7a;

Figures 8a to 8c are cross-sectional views illustrating the installation and removal of the embodiment of Figure 6;

Figure 9 illustrates a variant of the embodiment of Figure 7a having increased security;

Figure 10 shows a fourth embodiment of a toilet cover means;

Figure 11 is an exploded view of a locking means of the third embodiment of the invention; and

Figures 12a to 12c are cross-sectional views illustrating the installation and removal of the embodiment of Figure 10.

Detailed Description of a Preferred Embodiment

Referring to the drawings, a toilet blocker is shown at 10 in Figures 1 to 3. The toilet blocker includes a generally oval/elliptical top plate 12 having a length (major axis) L of approximately 380mm and width (minor axis) W of approximately 340mm. Two holes 14 are defined in the plate, the centres of those holes are spaced apart at a distance d of approximately 200mm.

Turning now to Figures 2 and 3, it can be seen that the blocker includes an upper bracket 16 defining a longitudinal axis 16a and a lower bracket 18 defining a longitudinal axis 18a disposed on the underside of the plate 12.

The upper bracket is in the shape of a relatively wide generally U shaped channel defining flanges 20 either side of the U shaped channel. The base 22 of the channel has a length l_1 of 180mm. The height h_1 of the sidewalls 24 of the channel is approximately 30mm. Each flange 20 on either side of the central channel portion has a length of approximately 70mm. As can best seen in Figure 3, there is a hole 26 in the centre of the base 22 of the upper bracket and a hole 28 in each flange adjacent the side walls 24.

The lower bracket 18 is flat has a length of approximately 320mm and also has a hole 30 in its centre.

Both brackets are typically made of mild steel.

Figure 4 shows a partially exploded sectional view of the toilet blocking apparatus illustrating the fitting of the apparatus to the upper part 50 of a toilet bowl. The toilet bowl defines an upper surface or rim 52 on which a toilet seat may rest in use and an internal depending lip 54 which depends down from the rim 52 and has a bottom edge 56 and functions as a fluid splashback preventer when the toilet is flushed.

Also shown in Figure 4, is a protective rubber rim 60 which extends around the perimeter of the mild steel plate 12 and protective rubber pads 62 defined on the ends of the two brackets 16 and 18. As shown in Figure 4, the upper bracket 16 and lower bracket 18 are joined by a bolt 64 extending through the holes. A plastic knob 66 is provided on the bowl head for use in tightening the bolt 64 and drawing the two brackets together. Except when otherwise restrained, the lower bracket 18 and upper bracket 16 are able to rotate relative to each about the axis defined by the bolt 56.

In use, the brackets are initially linked by the bolt but separate from the blocking plate 12. The brackets are inserted into a toilet bowl so that the upper bracket rests on the upper surface of the rim 52 of the bowl and the lower bracket is located below the lower edge of level of the depending lip/fluid splashback preventer 54. As is well known, toilet rims tend to be elliptical or oval in shape having a relatively larger major axis and a relatively shorter minor axis. The length of the lower bracket is such that it will fit relatively easily under the rim into the bowl and past the lower edge of the depending lip/fluid splashback preventer 54 when it is aligned with the longer major axis of a typical toilet bowl. However when the axis 18a of the lower bracket is rotated relative to the major axis, the diameter of the toilet bowl decreases and the end portions of the lower bracket locate underneath the rim 52 and typically abut against the outer walls of the narrower part of the toilet bowl. Once the lower bracket 18 is located underneath the rim 52, the bolt 64 can be tightened using the knob 66 to prevent

relative movement of the upper and lower brackets and to lock the brackets to the toilet bowl.

Tamperproof screws can then be used to lock the plate to the upper bracket of through the holes 14 in the plate and 28 in the upper bracket, thereby preventing unauthorised use of the toilet bowl. The process of removal of the plate is the opposite of installation with a special tool being required to remove the tamperproof screws.

Figures 5 to 6c illustrate a second embodiment of a toilet blocker 100. This embodiment includes a circular plate 102 defining a central hub 104 which is generally cylindrical and which defines integrally moulded pawls 106. The centre of the hub defines a recess 107 having a hexagonal cross-section. As is best seen in Figures 6a to 6c a cylindrical sleeve 109 having an annular cross-section projects up from the base 107a of the recess. The sleeve is omitted from Figure 5 to allow other components to be seen. Two diametrically opposed curved slots 108 are defined in the hub. As shown the slots define a first end 108a and a second end 108b and subtend an angle of about 90° about the centre of the circular plate. The first end 108a of each slot is located adjacent the hub 104. The second end 108b is located distal from the hub and adjacent the outer edge of the circular plate.

A "wishbone" bracket 110 for locking under the rim of a toilet is in the form of a generally C-shaped plastic moulding. An arm 112 extends radially inwards at either end of the bracket 110. A protrusion or plug 114 (refer to Figures 6a to 6c) depends from the end of each radial arm. A series of ramped lugs 116 project from the exterior of the bracket 110. As is best seen in Figure 6a these lugs define a first ledge portion 116a which is generally perpendicular to the and a second angled portion 116b which slopes down and way from the hub 104.

As illustrated in Figure 5, one plug 114 locates in each arcuate slot 108.

The toilet blocker includes a moulded cover 118 for covering the bowl and surrounding area of a toilet which includes a central circular aperture including depending walls which define a series of sloping teeth for engagement with the pawls 106.

A handle 120 defines a hexagonal depending portion 122 which engages in the aperture 107 in the hub. A bolt 124 which engages in the sleeve 109 secures the handle to the circular plate 102 as is best seen in Figures 6a to 6c. The cover 118 is sandwiched between the handle 120 and plate 102. The handle and plate 102 which rotate together by engagement of the hexagonal portion 122 and aperture 108. The spring 126 acts on the head of the bolt and biases the handle and plate towards each other. A trim 128 snap fits to the handle to cover the head of the bolt 124.

In use, the toilet blocker is placed over a toilet seat with the arms 112 located at the ends 108a of the slots 108 nearest the hub 104. With reference to Figure 6a, the handle 120 is then turned clockwise. The plate 102 rotates, however the bracket 110 does not. The plugs 114 travel along the slots 108 (which function as a cam) forcing the arms outwards towards the edge of the plate 102, which in turn causes the C-shaped bracket to deform and expand outwardly . As is best seen in Figure 6b as the lugs 116 contacts the rim of the toilet, specifically the lower edge of the splashback preventer, the ramped parts 116b forces their respective lug downwards allowing the lugs 116 to automatically adjust to the height of the rim. The ratchet 119 and pawl 106 mechanism defined by the hub and the handle prevents the handle from being turned in an anti-clockwise direction and maintains pressure on the bracket, as shown in Figure 6b.

With reference to Figure 6c, to release the toilet blocker, the trim 128 is removed from the handle and a pen 130 or screwdriver or the like is used to push down on the head of the bolt 124 to depress the hub 104 and release the ratchet and pawl mechanism to allow the handle to be turned counter-clockwise releasing the bracket 110 from engagement under the toilet rim.

Figures 7a to 9 show a yet further embodiment of a toilet blocker. Figure 7b shows the blocker 200 comprising a cover 202 incorporating two clamping mechanisms 204. In this embodiment two wells 206 are moulded in the cover. The wells have a base 208 and a sleeve 210 extends upwardly from the base 208. The sleeve 210 is omitted from Figure 7a, but shown in Figures 8a to 8c. A lever 212 having a projection 214 which projects into the well and can be moved away from the well is defined in the walls of the well.

A clamp 216 comprises a hollow cylinder with an integrally moulded projecting bracket 218. A threaded aperture 220 (not shown in Figure 7b - refer to Figure 8a) is defined in the centre of the clamp.

A hex bolt 222 locates in a rotatable cylindrical knob 224 defining a central bore having a hexagonal cross-section matching the head of the hex bolt, and a channel 226 which extends around the exterior of the knob close to its top.

The device is shown assembled in Figure 8a prior to use. The hex bolt 222 is located in the sleeve with the head of the hex bolt located in the bore of the knob which in turn is located in the well 206. A spring 228 is disposed between the base 208 of the well and the knob. The top of the knob is closed by a cover plate 230.

An initial turn of the knob rotates the bracket into position under the rim 54 and the bracket is impeded from rotating further by contact with the walls of the toilet bowl. Further turns of the sleeve draw the clamp upwards as shown in Figure 8b as the hex

bolt turns in the threaded aperture 220. When the bracket is drawn upwards sufficiently to touch the lower edge of the splashback preventer of the toilet, the knob is depressed and the projection 214 clips into engagement in the channel 226, locking the knob in a recessed position a shown in Figure 6c. Pushing the lever 212 down and away from the knob releases the projection from the channel and allows the knob to spring upwards for release of the bracket 218 by turning the sleeve counter-clockwise.

Figure 9 shows a variant of the toilet blocker of Figure 7a in which the sleeve and hex bolt are replaced by a tamper proof fastener 250 and a steel plate 252 covers the top of the cover.

Figures 10 to 12c illustrate a fourth embodiment of a toilet blocker plate 300. In this embodiment the brackets 308 slide rather than rotate to engage with or under the rim. A cover 302 defines two opposed recessed portions 304, one on either side of the cover. A corrugated portion 307 extends between the recessed portions. The underside of the recessed portion defines a series of concave channels 307a as is best seen in Figures 12a to 12c. Each recessed portion defines an elongate slot 306.

A removable locking tab 320 which matches the shape of the recess may be located in the recess by means of a tamper resistant screw 322. The tab defines a narrow elongate slot 324 which is superposed on the slot 306 when the tab is secured in position in the recess. Slot 324 is narrower than slot 306.

The brackets are in the form of a one-piece moulding 308, which include a body portion 310, one end of which defines a transverse cylindrical rod 312 or pivot, and the other end of which defines a generally v-shaped bracket or channel 314 for engaging a rim 54 of a toilet. A stem 316 extends upwardly from the body portion and is serrated to define a series of angled faces separated by channels, the faces being angled do that the stem may be pulled in one direction (upwards) through the slot 324 in the locking tab only but cannot be pushed down. A handle or grip 318 is defined at the top of the stem. The handle 318 projects through the slot 306 and through the narrower slot in the locking tab as illustrated in Figure 12a.

With reference to Figures 12a to 12c, in use, the cover 300 is located on a toilet bowl 50 and the clamps are slid outwards with the serrated stem 316 below the slot 320 in the locking tab. When the grip 314 is located below the rim 54 of the toilet the handle 318 is pulled upwards to lock the grip to the lower edge of the splashback preventer (refer to Figure 12b). The cover cannot be released since the serrations on the stem 316 prevent the stem being pushed downwards. To remove the cover means it is necessary to remove the locking tab which is held in place by the tamper proof fastener, 322.

It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.